Sandia National Laboratories

# Environmental Management System Program Manual


PG470222

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# Sandia National Laboratories
# Environmental Management Program Plan Approval

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## Acronym List

| | |
|---|---|
| AOP | Administrative Operating Procedures |
| ASER | Annual Site Environmental Report |
| BMP | best management practices |
| CEDT | Corporate Education and Development Training |
| CPR | Corporate Policy Requirements |
| CPS | Corporate Policy Statement |
| CPSR | Corporate Policy Statement Requirement |
| CRD | Contractor's Requirements Document |
| CPG | Comprehensive Procurement Guideline |
| CST | Customer Support Teams |
| CWA | Clean Water Act |
| DOE | U.S. Department of Energy |
| DOE P2 | DOE Pollution Prevention and Sustainable Environmental Stewardship |
| EDE | effective dose equivalent |
| EM | Environmental Management |
| EMS | Environmental Management System |
| EO | Environmental Operation |
| EP | Environmental Protection |
| EPA | U.S. Environmental Protection Agency |
| EPCRA | Emergency Planning and Community Right to Know Act |
| EPP | Environmentally Preferable Purchasing |
| ER | Environmental Restoration |
| ES&H | Environmental Safety and Health |
| ESA | Endangered Species Act |
| FY | Fiscal Year |
| GEMS | Geographic Environmental Management System |
| GWPP | Groundwater Protection Program |
| IC | Institutional Controls |
| IDT | Interdisciplinary Team |
| ILMS | Integrated Laboratory Management System |
| IM | Information Management |
| ISMS | Integrated Safety Management System |
| KAFB | Kirtland Air Force Base |
| KTF | Kauai Test Facility |
| LIWG | Line Implementation Working Group |
| LLNL | Lawrence Livermore National Laboratory |
| LTES | Long-term Environmental Stewardship |
| M&O | Maintenance and Operations |
| NEPA | National Environment Policy Act |
| NESHAP | National Emission Standards for Hazardous Air Pollutants |
| NHPA | National Historic Preservation Act |
| NMED | New Mexico Environment Department |
| NNSA | National Nuclear Security Administration |
| ODS | ozone-depleting substances |

| | |
|---|---|
| OFEE | Office of the Federal Environmental Executive |
| P2 | Pollution Prevention |
| PCB | polychlorinated biphenyl |
| POC | point-of-contact |
| SME | Subject Matter Expert |
| SNL | Sandia National Laboratories |
| SNL/CA | Sandia National Laboratories, California |
| SNL/NM | Sandia National Laboratories, New Mexico |
| SMO | Sample Management Office |
| SSO | Sandia Site Office |
| TEAMS | Tracking Environmental Actions Management System |
| TOMPS | Toxic Organic Management Plans |
| TTR | Tonopah Test Range |
| TWD | Technical Work Documents |
| UST | underground storage tanks |
| WRES | Washington Regulatory & Environmental Services |

## Definition of Terms

**Biota** – The plant and animal life of a region.

**Environmental Management System -** a continuing cycle of planning, evaluating, implementing, and improving processes and actions undertaken to achieve environmental goals.

**Environmentally preferred purchasing -** purchasing materials that reduce negative impacts such as global warming, resource depletion and human toxicity.

**Groundwater -** Water beneath the earth's surface, often between saturated soil and rock that supplies wells and springs.

**Integrated Safety Management System -** systematically integrates safety into management and work practices at all levels so that missions are accomplished while protecting the worker, the public, and the environment

**Long-term Environmental Stewardship -** Activities necessary to maintain long-term protection of human health and the environment from hazards posed by residual radioactivity and chemically hazardous materials.

**Pollution Prevention** – The use of materials, processes, and practices that reduce or eliminate the generation and release of pollutants, contaminants, hazardous substances, and waste into land, water, and air. For DOE, this includes recycling.

**Storm water** – Water runoff from rainfall or snowmelt, including that discharged to the sanitary sewer system.

**Surface discharge** – Spilling, leaking, pumping, pouring, emitting, emptying, or dumping into water or in a location and manner where there is a reasonable probability that the discharged substance will reach surface or subsurface water.

**Sustainable Design –** Building principles that integrate the use of ecologically sensitive site development, environmentally preferable products, resources, energy efficiency, water conservation, and indoor environmental quality into the entire lifecycle of a facility, including construction, operation, maintenance, and demolition.

**Wastewater** – (1) Used water that is to be discarded, such as sanitary sewer effluent from sources such as elimination of human waste, process waters, personal wash water from showers and sinks, or water from any washing operation (for example, washing vehicles, buildings, or equipment) or (2) storm water that was captured in any secondary containment structure regardless of whether that container was designed to or deliberately placed to catch or contain the rain.

# 1.0 Introduction

Sandia National Laboratories (Sandia) is committed to integrating environmental protection with its mission and recognizes that the environment must be protected and preserved for current and future generations. Sandia takes the responsibility of protecting and preserving the environment seriously and encourages employees, contractors and visitors to proactively manage environmental issues. This responsibility includes identifying and mitigating potential risks to the environment and incorporating environmental management in their daily work activities.

In compliance with U. S. Department of Energy (DOE) Order 450.1, *Environmental Protection Program*, Sandia will implement an Environmental Management System (EMS) as part of its Integrated Safety Management System (ISMS) by December 31, 2005. An EMS is a continuing cycle of planning, evaluating, implementing, and improving processes and actions undertaken to achieve environmental goals. The EMS is the part of the ISMS that manages the environmental consequences of Sandia's activities, products, and services.

## *1.1 Purpose*

The purpose of this document is to describe the Sandia EMS and to demonstrate how it is implemented as part of ISMS. This document presents the EMS strategy, EMS goals and objectives, EMS organization roles and responsibilities, a summary of EMS implementation at Sandia in accordance with all DOE required elements, and a description of how the EMS program is designed to achieve the EMS goals and objectives.

The EMS Program Manual will be reviewed and revised annually as part of Sandia's continuous improvement and self-assessment process.

## *1.2 Vision*

The vision of the Sandia EMS is to create and implement an EMS that will be best-in-complex within two years and best-in-class within five years. Best-in-class and best-in-complex are currently being defined by Sandia.

Key elements of this vision include:

- Implementing and maintaining a prevention-based system that goes beyond compliance,
- Providing value-added service to line customers,
- Continuously improving Sandia's environmental performance, and
- Gaining customer, stakeholder, and public recognition of Sandia's environmental achievements.

## 1.3 Scope

The scope of Sandia's EMS encompasses all activities, products, and services that have the potential to interact with the environment at Sandia National Laboratories (SNL)/New Mexico (NM), SNL/California (CA), the Tonopah Test Range (TTR), and the Kauai Test Facility (KTF) (see Chapter 2). This scope encompasses the following:

- Air Quality Compliance, Permitting and Reporting,
- Protection of water quality through proper management of groundwater, storm water, wastewater, and surface discharges and spills,
- Protection of other natural resources including biota,
- Protection of site resources from wild land and operational fires
- Protection of cultural resources,
- Implementing a watershed approach for surface water protection,
- Promoting the long-term stewardship of Sandia's natural and cultural resources throughout operational, closure, and post-closure life cycle,
- Reducing or eliminating the generation of waste, the release of pollutants to the environment, and the use of Class I ozone-depleting substances (ODS) through source reduction, re-use, segregation, and recycling and by procuring recycled-content materials and environmentally preferable products and services,
- Ensuring the early identification of potential adverse environmental impacts associated with Sandia operations through preoperational characterization and assessment, and effluent and surveillance monitoring, and
- Implementing cost-effective pollution prevention (P2) projects using life-cycle assessment concepts and practices in determining return-on-investment.

Sandia conducts operations at several locations (see Section 2). Key requirements for all Sandians include the Management and Operations (M&O) Contract (Prime Contract), DE-AC04-94Al85000, Sandia Corporate Policy Requirements (CPRs), and corporate guidance documents. All individuals who work at Sandia are subject to these requirements. This includes Sandia employees, subcontracted employees to Sandia, consultants, students, interns and visitors. The EMS is based on the flow down of corporate requirements to all operations; however some locations may have additional host requirements and site-specific goals.

## 1.4 Mission

The mission of Sandia's EMS Program is to:

- Work with Line organizations to comply with all environmental requirements, and to move beyond those requirements to become a recognized leader in environmental protection,
- Manage Sandia's environmental programs through the ISMS process,
- Integrate Sandia's environmental programs with other business processes to achieve efficiency and better customer service,
- Promote pollution prevention, resource efficiency and environmental stewardship,

- Achieve Sandia's ES&H Policy, CPSR400.1, through work planning and work activities,
- Establish Sandia as a leader in environmental performance with DOE, regulators, and the local community, and
- Perform risk analyses, establish goals, objectives and targets to mitigate those risks, and achieve those goals.

# 2.0 Site Information

Sandia is one of the nation's premier multi-program security laboratories within the DOE, National Nuclear Security Administration (NNSA). Sandia consists of four separate locations, each of which is described below. Sandia is a government-owned, contractor-operated, multi-program research and development facility. Sandia is a wholly-owned subsidiary of Lockheed Martin Corporation, which manages and operates Sandia under the M&O Prime Contract, DE-AC04-94AL85000, with the DOE and the NNSA. This defines the principles, working relationships, and contractual and legal requirements under which the laboratory must operate.

## *2.1 SNL/NM*

SNL/NM consists of Sandia-controlled premises within the state of New Mexico. The primary location is on 8,784 acres on the east side of Kirtland Air Force Base (KAFB) in Albuquerque, New Mexico (e.g., Research Park, SNL Carlsbad). Most of the work conducted at SNL/NM is conducted on 2,841 acres, which includes five technical areas and a number of remote test areas permitted from KAFB. Additionally, Sandia has operations at the Waste Isolation Pilot Plant and at the Pantex Plant in Amarillo, Texas. These are included within the definition of SNL/NM.

SNL/NM was created in 1949 as part of the DOE's Manhattan Project. The continuing mission of Sandia Corporation is to provide science and engineering support for the nuclear weapons stockpile. Recently, Sandia's mission expanded to include other aspects of national security, such as preventing the spread of nuclear, chemical, and biological weapons; developing technologies and strategies for responding to emerging threats such as terrorism; and preventing disruption of critical infrastructures such as energy supply and financial networks. Sandia Corporation collaborates with industry, universities, and other government agencies to commercialize new technologies.

## *2.2 SNL/CA*

SNL/CA was established in 1956 by Sandia Corporation to provide a closer working relationship with Lawrence Livermore National Laboratory (LLNL) and its nuclear design work. The SNL/CA site evolved into an engineering research and development laboratory by the 1960s and into a multi-program engineering and science laboratory during the 1970s. Following the end of the Cold War in the late 1980s, SNL/CA began to support stockpile stewardship ensuring nonproliferation.

SNL/CA is located approximately 40 miles east of San Francisco, near the City of Livermore in eastern Alameda County. The site occupies 410 acres, and the main campus occupies 134 acres. The site is surrounded on the east and the south by agricultural land and to the west by low-density rural housing. North of SNL/CA are East Avenue and LLNL.

## 2.3 TTR

The Tonopah Test Range (TTR) is a 280 square mile area located at the very north end of the Nellis Complex, about 32 miles southeast of Tonopah, Nevada. TTR was first opened in 1957, and has been a major test facility for DOE funded weapon programs. The sprawling facility is heavily instrumented with camera and radar tracking devices that record data from artillery shell testing, bomb drops, cruise missiles and rocket tests. In 1984, TTR also became host to the first F117 Stealth fighter squadron.

## 2.4 KTF

The Kauai Test Facility (KTF) is a Sandia rocket launch range operated in Hawaii for the DOE. Sandia's Strategic Target System and rail-launched sounding rocket missions launch from KTF. The facilities and personnel support a variety of sounding rocket missions, including weapons research and development; operational training, test, and evaluation; and technology development.

# 3.0 Background

On January 15, 2003, the DOE issued *DOE Order 450.1, Environmental Protection Program* which outlines the basic strategy for environmental compliance at DOE facilities. It became effective for all Sandia locations on August 21, 2003 through incorporation into the Sandia M&O Prime Contract. The objectives of DOE Order 450.1 are to implement sound environmental stewardship practices, and to meet or exceed compliance with environmental, public health, and resource protection laws, regulations, and DOE requirements. The order requires DOE sites to meet these objectives through an EMS that is part of the ISMS.

At Sandia, ISMS is the corporate "umbrella" to implement ES&H management. EMS is incorporated as the environmental component of ISMS by including environmental planning in operations, reviewing results, and using that information for continual environmental improvement.

Sandia completed the DOE Environmental Management System Self-Assessment Questionnaire (Questionnaire) and submitted it to the DOE Sandia Site Office (SSO) in Fiscal year (FY) 2002 and FY2003. Since 2003, site-level progress in implementing EMS has been reported to the DOE through the DOE's Environmental Management System Implementation Status Quarterly Report (Quarterly Report). The metrics were established by the Office of the Federal Environmental Executive (OFEE) so the agency scorecards could be reported to the Environmental Protection Agency (EPA).

An EMS Team, consisting of environmental program Subject Matter Experts (SMEs) with some line representation was formed in 2003 to work with the Sandia environmental programs and the divisions to make improvements in environmental management and meet the DOE Order 450.1 requirements. At that time, Sandia assigned a staff member as the EMS Program Coordinator with the responsibility of leading the team, and ultimately, developing and implementing an EMS at Sandia.

Sandia made incremental progress in EMS development during FY03 and FY04. Much of this progress was based on a gap analysis conducted by Washington Regulatory & Environmental Services (WRES). The results of this analysis formed the basis of a path forward for Sandia.

In FY05, Sandia made considerable progress in developing many of the critical elements of an EMS by completing the following activities for EMS implementation:

- Reviewed and updated the ES&H Policy (CPSR400.1),
- Completed environmental aspects and impacts analysis at the corporate and division levels,
- Established corporate and division EMS objectives and targets,
- Committed to the development of future environmental goals to incorporate aspects analysis and other performance data,
- Developed and implemented a Communication Plan,
- Conducted EMS briefings and training,
- Completed preliminary EMS Program documents,

- Conducted self-assessment survey (line and program),
- Conducted Department 12870 assessment, and
- Updated the ISMS description to include EMS language.

This EMS Program Manual is based upon the work conducted during the last three years and reflects the strategy developed during that time.

# 4.0 Programs Supporting EMS

The Environmental Management (EM) Department (10331) is responsible for the environmental programs at SNL/NM. Various EM environmental programs work in conjunction with SNL/TTR and SNL/KTF to ensure environmental protection and compliance. A detailed discussion of each program, and program responsibilities, can be found in the Environmental Management Operating Plan (SNL/NM 2005, PG470224). The Environmental Operations (EO) department (8516) is responsible for the environmental programs at SNL/CA. A detailed discussion of the SNL/CA programs and responsibilities can be found in SNL/CA Environmental Management System Program Manual, SAND 2005-6177.

A summary of each of these programs is presented in Sections 4.1 through 4.15. Leads for each of these programs are designated as environmental SMEs. Additional programs that support EMS are discussed in Sections 4.16 through 4.20. Differences in programs at the CA and NM sites are noted.

The SNL/NM EM department uses the Tracking Environmental Actions Management Systems (TEAMS) software to identify, integrate, and coordinate environmental compliance support to line organizations. At SNL/CA, all projects are presented to the Interdisciplinary Team (IDT) to assure environmental regulations and requirements are met and to promote awareness of site environmental goals and objectives.

## *4.1 National Environmental Policy Act (NEPA) Compliance Program*

The Sandia NEPA Compliance Program provides DOE/NNSA/SSO with technical assistance to ensure that Sandia complies with NEPA and resource protection laws, such as the Endangered Species Act (ESA) and the National Historic Preservation Act (NHPA). NEPA requires federal agencies and private entities that perform federally sponsored projects to consider environmental aspects in early project planning and decision-making. A major intent of the law is to ensure that federal agencies are aware of the potential environmental impacts associated with their operations and are able to make informed decisions based on this information.

The EM and EO departments work with line organizations to prepare NEPA Compliance Reviews for proposed new project activities. These reviews are performed in the electronic NEPA Module, which is part of the ISMS process. The self-managed NEPA support program has the full support and approval of DOE/SSO. The information compiled in these reviews is used to determine if the proposed actions are covered by existing environmental impacts analysis, or, if no coverage exists, whether DOE must review the project for environmental impacts.

At SNL/CA, each CA site project/action also goes through NEPA review and IDT review.

## 4.2 P2 Program

The Sandia P2 program staff is a line support organization, consisting of Sandia and contractor professionals with expertise in waste reduction and resource conservation technologies. The leads for the P2 staff at SNL/NM and SNL/CA are designated as the site P2 Coordinators. The P2 Coordinators are responsible for managing all P2 activities and serving as the interface between DOE and the site. The P2 staff interacts with the following key organizations at Sandia to implement the requirements of the P2 Program in support of its vision and mission: Line Organizations, ES&H Coordinators, Environmental Protection (EP) Representatives, Interdisciplinary Team (SNL/CA only), Safety, Health & Environment Advisory Committee (SNL/CA only), the Line Implementation Working Group (LIWG), Waste Operations, Regulatory Support, SNL Procurement, Facilities Management and Operations, Fleet Maintenance, Reapplication, Environmental Restoration (ER) and Long-Term Environmental Stewardship (LTES).

The Sandia P2 Program includes activities such as sustainable design, environmentally preferable purchasing, reuse, recycling, waste reduction, reduction of energy use, reduction of emissions and water conservation practices.

## 4.3 Ecology Program

Ecological design is being implemented through continued promotion of sustainability and application of EMS principles. Site-wide ecology is characterized to provide a planning mechanism for land-use decisions. This includes designating threatened and endangered species habitat, and additional ecologically sensitive habitats such as prairie dog colonies. At SNL/NM this information is utilized in conjunction with TEAMS and the Geographic Environmental Management System (GEMS) software tools to provide ecological tools for proper environmental planning of on-site natural resources. At SNL/CA this information is included as part of the NEPA review and IDT processes.

The Ecology Program works in conjunction with Facilities Telecon to maintain regulatory compliance by providing a control that requires a Biologist to review all work orders potentially impacting species associated with the ESA and the Migratory Bird Treaty Act. All work orders involving dead birds, nests, injuries, and wildlife mitigation are routed through the Ecology Program. Additionally, the Ecology Program works with the line ES&H coordinators to ensure proper compliance and awareness strategies.

## 4.4 Air Quality Program

The Air Quality Compliance, Permitting, and Reporting (Air Quality) Program is responsible for assessing impacts from SNL/NM's existing or planned air emission sources, ensuring the line's compliance with all applicable air quality requirements, conducting dispersion modeling for emission sources, and providing air permitting assistance. The SNL/NM Air Quality Program supports NM, KTF and TTR. The Air Quality Program at Sandia is designed to ensure that all required air permits or registrations are in place and that the facility operations comply with the

existing permit conditions and/or applicable regulations. SNL/CA has an Air Quality Program which focuses on air emissions source evaluation, permitting, and permitting compliance.

## 4.5 Water Quality Program

The Water Quality Program is specifically concerned with the protection of water quality through the proper management of groundwater, storm water, wastewater, surface discharge, spill prevention control and countermeasures, and underground storage tanks (UST). The goal of the Water Quality Program is to lead Sandia in developing and implementing policies and procedures that assist Sandia activities in complying with applicable federal, state, and local environmental laws, regulations, and DOE directives dealing with water quality.

## 4.6 Radiological National Emission Standards for Hazardous Air Pollutants (NESHAP) Program

The Radiological NESHAP Program at SNL/NM is responsible for the programmatic requirements necessary for documenting compliance with the Radiological NESHAP regulation 40 CFR 61 Subpart H. A dose assessment is performed annually to determine the impacts of airborne radiological emissions from SNL/NM facilities as required by the regulation. The dose assessment process requires the following inputs in order to complete the modeled assessment: applicable Radiological NESHAP receptor distances, SNL/NM radiological release parameters, appropriate SNL/NM site-specific meteorological data, and 50-mile radius population and agricultural data. The CAP88-PC modeling code is used in calculating the effective dose equivalent (EDE) to each SNL/NM Radiological NESHAP receptor. The dose results are summarized in the annual Radiological NESHAP compliance report that is submitted to the DOE and the EPA each calendar year.

## 4.7 LTES Program

LTES is defined as activities necessary to maintain long-term protection of human health, the environment, natural and cultural resources from hazards associated with residual radioactive and hazardous contamination at former ER and spill sites, as well as currently active sites. Stewardship is important because it is clear that technology limitations, and the associated costs to clean up sites to a natural state, will result in residual contamination at some of these sites. Good LTES planning ensures that public health and environmental quality will be protected through Information Management (IM), Institutional Controls (IC) and monitoring. Specific monitoring and ICs may be specified as a site-specific basis, as appropriate.

## 4.8 Wastewater Discharge Program

The Wastewater Discharge Program operates at Sandia to monitor liquid effluent discharges to meet the regulatory compliance limits of the Clean Water Act (CWA). Wastewater that is discharged to the public sanitary sewer system from Sandia facilities is divided into two categories: sanitary discharges and industrial discharges. Sanitary waste streams include wastewater from restrooms and showers, food service establishments, and other domestic-type

activities. Industrial discharges are produced from general laboratory research operations, including electroplating, metal finishing, microelectronic development, and photographic processes. Under the Wastewater Discharge Program, Sandia further reduces its toxic discharges by implementing Toxic Organic Management Plans (TOMPs), general good housekeeping, and engineering practices.

## 4.9 Storm Water Program

Storm water flowing over the ground surface has the potential to pick up and transport contaminants. The Storm Water Program works in coordination with the P2 Group, the Surface Discharge Program, Facilities Engineering, and the ER Project to implement measures and best management practices (BMPs) to prevent or reduce potential contaminants from being transported in storm-water runoff.

## 4.10 Surface Discharge Program

Water quality must be assessed by process knowledge or sampling before it can be discharged to the ground. The Surface Discharge Program helps ensure the cleanliness of water before it is discharged to the ground and assists the Sandia Line organizations by evaluating all surface discharge requests. At SNL/NM, the EM Department is the point-of-contact (POC) for the Line Organizations to DOE, State and Federal Agencies, for submitting permit applications if needed. The EM Department is also responsible for assessing compliance to NM State regulations and the CWA. At SNL/CA, the EO Department is the POC responsible for these functions and assessing compliance with the CA and CWA regulations.

## 4.11 Groundwater Monitoring Program

The Groundwater Protection Program (GWPP) at Sandia is structured to prevent contamination of groundwater at Sandia from on-going operations, detect contamination through surveillance sampling, monitor contamination where it has occurred, and report to the DOE, EPA, State organizations and public stakeholders on groundwater conditions at Sandia. Groundwater conditions include groundwater quality and changes in groundwater availability through net recharge and withdrawals. The preventive component of the program is a collaborative effort in the control of surface discharges, rapid response to accidental spills, and control of groundwater access points.

## 4.12 Meteorological Program

The meteorological program at SNL/NM is designed as a multi-faceted program to support health and safety applications including emergency management and safety basis operations, regulatory compliance activities including air dispersion modeling and dose assessments, and general laboratory support such as facility and engineering design applications. Strategic monitoring locations are based on the laboratory configuration of potential pollutant sources, topographic considerations, and spatial distribution of laboratory activities. Regulatory

requirements for data quality and applicability are regularly reviewed, as well as the status of new major projects at the laboratory.

## 4.13 Ambient Air Surveillance Program

The ambient air surveillance program at Sandia is designed to collect and report outdoor air quality in support of the NEPA process, air quality compliance activities, and air quality health concerns of on-site and off-site populations. Monitoring locations are based on the laboratory configuration of potential pollutant sources, with logistical considerations such as power availability and land ownership also influencing locations. Regulatory requirements for data quality and applicability are regularly reviewed, as well as the status of new major projects at the laboratory. Samples collected are analyzed for the same suite of constituents to assist with qualitative trending, using methods and protocols approved by the EPA to assure comparability.

## 4.14 Terrestrial Surveillance

Terrestrial surveillance at SNL/NM includes soil, sediment, vegetation, and analysis for both radiological and metals constituents. On-site sampling locations are selected based on areas of known contamination, potential release sites, or in areas where contaminants, if present, would be likely to occur. Additional sample locations may be added in response to new facility construction or changing mission. Perimeter sample locations are chosen to detect movement of contaminants from on-site to off-site areas. Off-site samples are taken in areas where contamination from on-site activities is unlikely. Off-site samples represent "background" conditions, and are used as a basis of comparison for on-site and perimeter values. From year to year, terrestrial surveillance locations remain essentially constant; however, locations may be added and/or removed in any given year based on operational needs or to supplement existing sampling locations.

SNL/CA conducts terrestrial surveillance with similar scope for on-site and off-site locations.

## 4.15 Environmental Protection (EP) Representatives Program

The EP Representatives Program facilitates communication between Line Organizations and the EO and EM Departments. EP Representatives advise Line customers regarding management of solid hazardous, radioactive and mixed waste streams and other environmental areas including air, water, and P2.

The EP Representative Program is responsible for providing environmental information, guidance, and support to the Line customers in accordance with Sandia requirements, the ES&H Manual, Line Work Agreements through CSTs, DOE Orders included in the Operating Contract, and relevant Administrative Operating Procedures (AOPs). The EP Representative Program is part of the EMS. The EP Representative team incorporates Sandia's ISMS elements in their work and in working with their Line customers.

## 4.16 ES&H Assurance System

The ES&H Assurance System is an integral part of Sandia's EMS and is implemented using the familiar framework of the ISMS. The ES&H Assurance Department addresses both the assurance of ES&H program performance, to provide accurate, timely, efficient, and cost effective tools and services, and contributes to assurance of ES&H performance by Line Organizations and the Corporation as a whole.

The ES&H Performance Assurance System Department (http://www-irn.sandia.gov/iss/depts/perfassurance/) supports center and corporate decision making by monitoring, analyzing, and communicating performance requirements and data. The line uses this information to perform work that will meet expectations for safety, health, and the protection of the environment. The system is designed to encourage safe work practices and to mitigate potential issues and correct problems. The ES&H performance metrics are tracked.

Environmental information is collected, analyzed, and reported for decision-making and continuous improvement of environmental programs, services and tools through the Assessment System. Data is available in various formats such as Sandia's Annual Site Environmental Report (ASER), P2 and Energy Efficiency Reports, permit applications, monitoring reports, and survey and audit reports.

Additionally, NEPA planning statistics data is being tracked as a leading indicator in an effort to improve NEPA planning.

## 4.17 Corporate Environmental Training

The Corporate Education Development and Training (CEDT) organization consists of three departments and a cross-organization partnership with the California site Education, Training, and Development function. The goal of this "virtual" training organization is to ensure Sandia's success by creating and implementing a full range of results-oriented development and training solutions.

CEDT offers training methods, such as computer-based, web-based, streaming video and distance learning. These new delivery strategies make it faster and easier to access training but also make comprehension more conductive to individual student learning styles.

## 4.18 Green Purchasing Team and Construction Procurement Team

The SNL/NM Green Purchasing Team and Construction Procurement Team meets quarterly to identify and implement ways to increase the purchase of Environmentally Preferable Purchasing (EPP) items. The objective is to increase purchase of EPP.

## 4.19 Waste Operations

Waste Operations at Sandia is responsible for the safe handling, packaging, storage, treatment and shipment for disposal of solid, low-level radioactive and mixed low-level radioactive waste. Waste Operations is a general term. At SNL/CA, Waste Management and Maintenance Engineering departments carry out the activities. At SNL/NM, waste operations are performed by the Hazardous and Solid Waste Department and the Radioactive Waste/Nuclear Disposition. These departments manage the recycling of many hazardous and non-hazardous wastes and administer two reuse programs: the Lead Bank (SNL/NM only), and the Radioactive Source Bank (SNL/NM only).

## 4.20 Annual Planning and Budget Process

The Sandia EM, EO departments and support organizations participate in the annual planning and budget process to identify resources and needs to implement the various environmental programs and EMS. Budget requests are submitted for management approval, based on regulatory requirements, best management practices and resources needed to meet EMS objectives and targets. Sandia divisions also identify resources needed to implement EMS within their divisions.

# 5.0 EMS Integration at Sandia

Sandia has a formal framework for managing its operations called the Integrated Laboratory Management System (ILMS), which flows through Sandia's Prime Contract with DOE. An element of the ILMS is the Corporate Business Rules. The Corporate Business Rules are composed of Internal Directives, Corporate Policy Statements (CPS) and CPRs. The CPSs and CPRs function to consistently implement requirements across the laboratories.

The ILMS establishes essential elements that must be implemented as part of all work management processes. The process is depicted in Figure 1. The ISMS is one of several ILMS constituent elements. The ILMS provides the context for implementing Sandia's ISMS. The ISMS governing document is the ISMS Description (CPR 400.1.2). This Description articulates the institutional requirements for all operations (SNL/NM, SNL/CA, SNL/TTR, or at any other sites where Laboratory employees and subcontractors work), unless the Sandia ISMS requirements are superseded by those of another site with a DOE approved ISMS program.

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**FIGURE 1**. Requirements Flow Down

Specific ES&H minimum requirements are defined in the Sandia ES&H Manual (MN471001). The requirements in the ES&H Manual are passed to organizations through the language found in *CPSR400.1 Environment, Safety and Health Policy Statement Requirement* and the first two chapters of the ES&H Manual. The term Safety, as used in ISMS, encompasses environment, safety, and health, including pollution prevention and waste minimization.

EMS at Sandia is being implemented through the existing ISMS structure. EMS has been included in the ISMS description and the ES&H Manual will be modified to include EMS as a requirement for all Sandia line organizations.

This section describes the elements of Sandia's EMS in conformance with the requirements of DOE Order 450.1.

## *5.1 ES&H Policy*

The ES&H Policy of Sandia Corporation (Sandia), as stated in Corporate Policy Statement Requirement (CPSR) 400.1, is to protect and preserve the environment, and to ensure the safety and health of its employees, contractors, visitors, and the public, while maintaining the corporate vision and mission. As part of its mission, Sandia has adopted three ES&H principles:

- All employees take responsibility and are accountable for improving the work environment and ES&H performance at Sandia,
- An unwavering belief that job-related injuries, illnesses, and environmental incidents are avoidable and unacceptable, and
- We are each accountable for minimizing our impact on the environment in our communities.

ES&H performance at Sandia is based upon the core functions and guiding principles of the ISMS as outlined in CPR400.1.2. The EMS is integrated into the ISMS and it is a continual cycle of planning, implementing, evaluating, and improving processes and actions for the achievement of environmental goals. Additional ES&H requirements are described in the ES&H Manual, MN471001.

Sandia's corporate ES&H Program mandates compliance with all applicable laws, regulations, the DOE directives included in the M&O Prime Contract between DOE and Sandia, internal corporate policy requirements, and permit requirements. Sandia has commitment to:

- Plan work, incorporating safety awareness, protective health practices, environmental management, P2, and long-term stewardship of resources,
- Identify hazards, evaluate and monitor, and manage risk with effective ES&H systems,
- Implement controls to prevent injuries, exposures to hazardous materials, and releases of materials that could be hazardous to the environment,
- Do quality work while protecting people, the environment, and our nation's security,
- Continually improve our ES&H performance by establishing, meeting, and assessing measurable ES&H goals, objectives, targets, and milestones, and
- Communicate ES&H issues to our members of the workforce, the community, regulators, and stakeholders.

Sandia's ES&H Policy, ES&H implementation and management, and assurance to comply with our contractual commitments, are elements of a common purpose, the achievement of our ES&H Performance Excellence Objectives to create a work environment that strives for:

- Zero job-related injuries and illnesses,
- Zero environmental incidents, and
- Zero operations fines, violations, or penalties.

The ES&H Policy reflects a top management commitment, and therefore, is reviewed periodically to ensure that it remains suitable for the nature and scale of Sandia’s business.

## 5.2 EMS Roles and Responsibilities

Sandia is a large site with organized by divisions. EMS is implemented by taking advantage of that divisional structure. The Sandia EMS is a corporate program that is centrally organized and administered. Each division has the responsibility to analyze its own separate activities, products and services to identify significant environmental aspects and develop objectives and targets, performance indicators, roles, authorities and responsibilities, and training needs associated with those significant aspects. Each division's objectives and targets support the corporate objectives and targets.

Figure 2 provides a graphical representation of the EMS implementation strategy. Roles and responsibilities associated with each of these functions are discussed below.

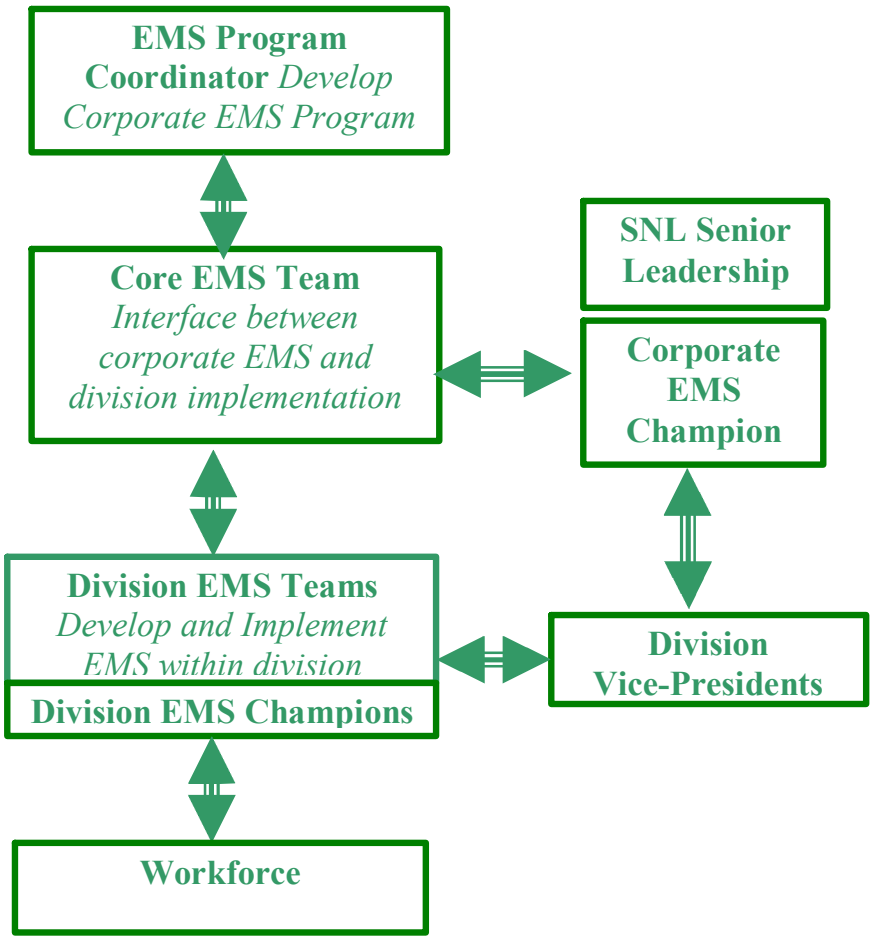


**FIGURE 2.** EMS Implementation Strategy

### 5.2.1 EMS Program Coordinator

The EMS Program Coordinator is responsible for developing and maintaining program documents and guidance to implement the EMS. The EMS Program Coordinator is also responsible for monitoring performance relative to Sandia's laboratory-wide environmental goals and objectives and reporting this progress to top management. The EMS Program Coordinator will ensure that the following tasks are completed:

- Annually review and revise the Sandia EMS Program Manual,
- Annually review and revise the ES&H Manual to include EMS requirements,
- Make recommendations to Managers regarding adequate staffing for the Program,
- Track progress toward achieving corporate objectives and targets and submitting all required EMS reports,
- Serve as the primary contact with DOE EMS counterparts,
- Facilitate EMS Core Team meetings and record and distribute the results of those meetings,
- Assist the division with developing goals and objectives and track division actions and progress in meeting their goals and objectives,
- Conduct program self-assessments, and provide leadership to the EMS Program,
- Work with environmental SME's to review environmental regulatory requirements to ensure they are included within environmental aspects and impacts analysis, and
- Facilitate top management review of EMS.

### 5.2.2 Corporate EMS Champion

The Vice-President of Division 10000, Infrastructure and Business Management, is designated as the Corporate EMS Champion. The Sandia Corporate EMS Champion responsibilities are:

- Effectively implement EMS within ISMS, consistent with DOE Order 450.1, and establish a pathway to achieve best-in-complex and best-in-class environmental performance,
- Annually review corporate aspects and impacts and approve objectives and targets (developed by the EMS Core Team) to mitigate Sandia's environmental impacts,
- Track progress toward achieving corporate EMS objectives and targets, and
- Identify and disseminate the EMS roles and responsibilities to Sandia senior leadership.

### 5.2.3 Sandia Senior Leadership

Sandia's Senior Leadership consists of the Laboratory Director, Executive Vice Presidents and Division Vice Presidents. Senior Leadership is responsible for establishing the ES&H Policy and providing a top management commitment and support for Sandia's EMS. To initiate and sustain the EMS Program Sandia's senior leaders must commit to and communicate the importance of:

- Making environment protection a corporate goal,
- Integrating environmental management into daily work activities,

- Focusing on continual improvement through the evaluation of environmental problems, and
- Promoting employee awareness and involvement.

### 5.2.4 Division Vice Presidents

Division Vice Presidents are responsible for knowing and understanding EMS and for supporting and encouraging environmental consideration in project planning processes. The Division Vice Presidents shall:

- Identify a Division-Level EMS Champion,
- Identify roles and responsibilities of the Division-Level EMS Champion,
- Demonstrate commitment to the EMS Program by sending an EMS Commitment letter to the division and providing sufficient resources to implement EMS within the division,
- Create a Division-Level EMS Team,
- Submit an EMS Self-Declaration Letter indicating the Division has implemented EMS by December 1, 2005,
- Provide leadership within the division to integrate EMS into all work activities, and
- Annually review and revise division environmental aspects and impacts and develop objectives and targets to mitigate those impacts.

### 5.2.5 EMS Core Team

The EMS Core Team consists of the EMS Program Coordinator, Division EMS Champions, Environmental SMEs, Division ES&H Coordinators and others interesting in or involved with the EMS. The EMS Core Team acts as a liaison between the Division EMS Teams, the Senior Leaders and the EMS Program. This Team focuses on the Corporate-Level EMS implementation and works with the Divisions to develop, implement, and improve their EMS. The Core Team will:

- Review all EMS program documents and provide input and direction to the EMS Program Coordinator,
- Work with divisions to complete Division-Level aspects/impacts analysis of work activities,
- Assist Divisions with setting measurable EMS goals,
- Annually review/revise corporate-level environmental aspects and, with the assistance of the EMS Program Coordinator develop EMS objectives and targets for the coming year. These will be forwarded to the EMS Corporate Champion for approval,
- Conduct EMS Awareness Briefings,
- Perform outreach activities with the internal Sandia community, and
- Perform outreach activities with the external community.

### 5.2.6 Division EMS Teams

The Division EMS Teams consist of the Division EMS Champion, Division ES&H Coordinator, appointed members of the division workforce and others interested in or involved with EMS. Each division is responsible for determining the specific membership. The Division EMS Teams will:

- Create an EMS Team Charter,
- Conduct Division EMS Team meetings and record the actions of those meetings,
- Conduct annual division-level aspects/impacts analysis of division work activities,
- Annually set measurable division-level EMS goals,
- Create and annually update an EMS division-level EMS Action Plan, and
- Hold EMS Awareness Briefings in the Division annually.

### 5.2.7 Division EMS Champions

Division EMS Champions and ES&H Coordinators are responsible for assisting staff and management in environmental performance and compliance. They are responsible and accountable for:

- Leading the division EMS Team and serving as a member of the EMS Core Team,
- Acting as liaisons between the line organization and EMS Core Team, providing open, two-way communication between the line organization and the EMS Division and Core teams,
- Reporting to the Division Vice-President on the status of EMS implementation within the division and progress in meeting objectives and targets,
- Reviewing new EMS documents and procedures and providing input on line impact,
- Ensuring that corrective actions to EMS deficiencies are completed,
- Reviewing and approving the division-level EMS Action Plan.

### 5.2.8 Workforce

The success of EMS depends on the commitment of every member of the workforce to embrace the preservation of the environment and the reduction of pollution by:

- Saving energy (e.g.., turning off lights and computers when not in use),
- Preventing pollution (e.g.., carpool or ride bike to work),
- Saving water (e.g.., report leaks immediately, use low-water use plants for landscape),
- Recycling (e.g.., paper, aluminum, plastic),
- Reusing (e.g.., ceramic coffee cups instead of disposable, sending items to Reapplication),
- Reducing Waste (e.g.., printing double-sided; ordering new supplies/chemicals only when needed),
- Reducing Toxics (e.g.., use non-toxic cleaners and washable rags for cleaning),
- Knowing the ES&H Policy and helping to meet division EMS objectives and targets.

## *5.3 Legal and Other Requirements*

The Legal Infrastructure Support Center (11100) reviews all Federal, State and local statutes, regulations and ordinances, as well as DOE directives to ensure these requirements and provisions are placed in the M&O Prime Contract. Center 11000 is responsible for the interpretation, analysis or determination of applicability of these items. Furthermore, they will review documents for legal sufficiency and consistency with legal obligations affecting Sandia.

Center 11100 disseminates the requirements and provisions for review to the Corporate Contracts and Policy Management Department (10730) and the appropriate SMEs. Center 11100 reviews comments from Department 10730 and from the SMEs to ensure all requirements will be optimally incorporated into the M&O Prime Contract and the ES&H Manual for implementation. The roles and responsibilities for all members of the workforce regarding requirements are described in Sandia documents, such as the ILMS, ES&H Policy, ISMS, and the ES&H Manual.

The requirements from DOE Order 450.1 were added to the Sandia M&O Prime Contract in 2003. The requirements flow from the M&O Prime Contract, to the Business Rules, ES&H Policy, CPSR 400.1, to line guidance in the ES&H Manual, and through programs, guidance and technical work documents (TWDs).

Sandia's EMS follows requirements from the "Greening the Government" executive orders through the following DOE Orders that are included in the M&O Prime Contract:

- DOE Order 430.2A implements the requirements of Executive Order 13123. Executive Order 13123 requires compliance with the Energy Policy Act and sets goals for the implementation of energy conservation, water conservation and sustainable design practices.
- DOE 450.1has combined the requirements of Executive Orders 13101, 13148 and 13149. Executive Order 13101, requires compliance with the Pollution Prevention Act, Emergency Planning and Community Right to Know Act (EPCRA) reporting requirements and affirmative procurement practices. Executive Order 13148 promotes environmental leadership through prevention-based compliance programs, reduction in the use of toxic chemicals, beneficial landscaping and the implementation of an EMS. Executive Order 13149, requires the Federal Government exercises leadership in the reduction of petroleum consumption through improvements in fleet fuel efficiency and the use of alternative fuel vehicles and alternative fuels.

## *5.4 Aspects and Impacts*

The EMS Core team performed an environmental Aspects/Impacts Analysis for Sandia's site-wide operations to identify the environmental aspects associated with Sandia's activities, products and services and the potential environmental impacts associated with these aspects. The EMS Core Team conducted a comprehensive examination of historic and current operations at Sandia, which had the potential of impacting the environment. The results of this review identified 18 potential aspects, which warranted further evaluation.

Six specific environmental impacts were identified that could be associated with each of the 18 environmental aspects. The six environmental impacts are: contamination of ground/surface water; contamination of soils due to spills or leaks; contamination of air; exposure to workforce; exposure to public; and wildlife habitat disturbance. Each aspect was then ranked by evaluating the associated environmental impacts for the probability and consequence of each occurrence. A score from 1 to 3 was assigned for the probability and for each of five separate consequences (environment, safety & health, compliance, cost, and stakeholder and public perception). The

consequences were summed and multiplied by the probability factor to determine a risk score for each environmental impact. These scores were then summed to determine a numerical score for each environmental aspect. Figure 3 shows the risk ranking conducted for the "Use and Store Hazardous Materials" aspect.

| **ASPECT: Use and Store Hazardous Materials** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | **Consequence** | | | | | | |
| **IMPACT** | **Probability Factor** | **Environment** | **Safety & Health** | **Compliance** | **Costs** | **Stakeholder & Public** | **Total Consequence** | **Risk Ranking** |
| Contamination of ground/surface water | 1 | 3 | 1 | 2 | 3 | 3 | 12 | 12 |
| Contamination of soils due to spills or leaks | 2 | 2 | 1 | 1 | 2 | 2 | 8 | 16 |
| Contamination of air | 2 | 1 | 1 | 2 | 2 | 2 | 8 | 16 |
| Exposure to Workforce | 3 | | 2 | 2 | 3 | 1 | 8 | 24 |
| Exposure to Public | 1 | 1 | 1 | 1 | 1 | 1 | 5 | 5 |
| Wildlife Habitat | 3 | 2 | | 1 | 1 | 1 | 5 | 15 |
| **Total** | | | | | | | | 88 |

**FIGURE 3.** Environmental Aspect Priority Determination
(1-low, 2= moderate, 3=high)

This procedure was repeated for each environmental aspect to determine a relative risk ranking. Table 1 lists the eighteen environmental aspects according to their rank. The first six aspects, shown in bold, were determined to be Sandia's significant environmental aspects. The first five of these aspects were determined to be significant based on their risk ranking score. The sixth significant aspect, resource use, represents the aggregation of four individual aspects, water, natural gas, electricity and materials that were originally analyzed separately. Although each individual aspect had a risk ranking in the medium range, it was felt that the combined effect warranted identifying resource use as a significant environmental aspect. This is also consistent with the emphasis placed on resource use in DOE Orders 450.1 and 430.2A.

**TABLE 1.** Prioritized Environmental Aspects

| ASPECT | RISK RANKING SCORE |
|---|---|
| **Hazardous Materials (Use and Storage)** | 88 |
| **Water Discharges (Sanitary Sewer and Storm water** | 70 |
| **Hazardous Waste Management** | 68 |
| **Land Use** | 66 |
| **Radioactive Material (Use and Storage)** | 65 |
| **Resource Use (water, natural gas, electricity, materials)** | N/A |
| Radioactive/Mixed Waste (Generation and Management) | 60 |
| Air Emissions | 54 |
| Hazardous and Radioactive Material and Waste Transportation | 46 |
| Noise and Vibration | 45 |
| Remediate Contaminated Sites | 44 |
| Fire Risk (Wildland) | 40 |
| Industrial/Solid Waste (Generation, Handling and Disposal) | 38 |
| Legacy Polychlorinated Biphenyl (PCB) Management | 37 |
| Asbestos Management (Renovations and Demolition) | 34 |
| Reuse and Recycling of Resource | 33 |
| Electromagnetic Radiation (High Energy, Microwaves, Lasers) | 32 |
| Biological Hazards (Research, Storage and Disposal) | 32 |

Due to the extensive variation in operations between divisions at Sandia Corporation, division-level Aspect/Impacts were performed following the corporate-level analysis. The results from the corporate Aspect/Impact analysis were provided to Division EMS Teams to use in developing their divisions environmental aspects.

## *5.5 Objectives and Targets*

The Core EMS Team, using the prioritized environmental aspects, developed objectives and measurable targets for FY05. Additionally, the Sandia P2 Program developed specific performance targets based on the DOE Pollution Prevention and Sustainable Environmental Stewardship (DOE P2) Goals (*SNL Pollution Prevention Plan, FY2006*). These performance targets are tracked on a quarterly basis.

Appendix A presents the Sandia objectives and targets for FY06. The targets and objectives in Appendix A are tracked and reviewed quarterly by the EMS Core Team as part of the continual improvement process and annually to review and revise Sandia's significant environmental aspects and to set new objectives and targets for the coming year.

Each division then established their own objectives and targets in support of the corporate objectives and targets, based on their specific environmental aspects and included them in their annual ES&H Action Plan. The division EMS Champions track progress toward achieving those

objectives and targets and reports progress to their division vice-president. Copies of the division objectives and targets and progress reports are provided to the EMS Program Coordinator.

## 5.6 Training

Environmental training is important in creating awareness of requirements and guidance. The following classes are web based and managed through Sandia's CEDT and help to identify and control activities with significant environmental impacts:

- ES&H Awareness (ESH100), required annual training for all members of the workforce,
- Hazardous Waste & Environmental Management, SNL/NM, (ENV112), required training for waste generators, and
- Hazardous Waste Generator Training, SNL/CA, (ENV233), required training for waste generators.

In FY05, each of these classes was updated to include information on the ES&H Policy, ISMS, EMS, environmental hazards recognition and emergency awareness.

Sandia also conducts environmental impacts awareness training during Divisions and/or Center All Hands and staff meetings. Specific training to conduct aspect/impact analyses is provided by the EMS Program Coordinator and Division EMS Champions at the Core and Division EMS Team meetings.

## 5.7 Communication and Awareness

Sandia has developed a detailed Communication and Awareness strategy. The complete Communications and Awareness strategy is contained in the *Environmental Management System (EMS) Communication Plan*. The plan identifies specific communication methods, the target audience for each of the methods. Key communication methods include: presentations and briefings; Lab News, Porcelain Press and Sandia Daily News articles; the ASER; an Environmental Recognition award; internal and external websites; and environmental lessons learned.

## 5.8 Emergency Preparedness and Response

The procedures for identifying the potential for and response to accidents and emergency situations and for preventing and mitigating the environmental impacts that may be associated with emergencies can be found in ES&H Manual, Chapter 15, "Emergency Preparedness and Management" and the SNL/NM Emergency Plan, Issue E, May 2004.

## 5.9 Monitoring and Measurement

The EM Department's *Environmental Management Operating Plan*, PG 470224, describes environmental monitoring to support SNL/NM. The EM homepage displays program specific monitoring information. Monitoring and environmental surveillance processes include gathering and evaluating information collected by the planning and control process groups, identifying critical pathways to ensure monitoring of appropriate medium, use of analytical protocols, detections limits, and data applications. Monitoring programs include:

- Meteorological Monitoring Program
- Ambient Air Surveillance
- Terrestrial Surveillance
- Ecology Surveillance
- Air Quality
- Water Quality

The details of the SNL/CA site environmental monitoring program are included in Annual Environmental Monitoring Program Report.

Another source of environmental monitoring at SNL/NM is the ER Project. Both EM and ER monitoring programs utilize the Sample Management Office (SMO): http://www-irn.sandia.gov/esh/smo/.

The SMO manages environmental analytical laboratory contracts and assists with the processing and tracking of samples undergoing chemical and radiochemical analyses performed at these laboratories. SMO services include:

- Sample packaging, shipping, and tracking,
- Data tracking, contract verification review, problem resolution and data distribution to clients,
- Invoice processing and cost billings through the SMO holding project,
- Contract Procurement and Management, including auditing, and laboratory performance evaluations, and
- Sample project coordination.

The SMO maintains contracts with three EPA approved commercial laboratories. All laboratories are NQA-1 qualified and Utah certified. Analyses performed at these laboratories include general inorganic chemistry, metals, geotechnical, organic, and radiochemistry. Analysis methods utilize EPA approved or ANSI methods upon request.

## 5.10 Corrective Action

Sandia evaluates compliance by conducting Organizational and Programmatic Self-Assessments, and Internal Independent assessments per the ISMS CPR400.1.2§7.0 and the EMS Manual, Section 22A. More detail on specific assessments is provided in Section 5.12.

## 5.11 Record Keeping

Sandia has established and maintains procedures for controlling documents to ensure the following:

- They can be located,
- They are periodically reviewed, revised, and approved by authorized personnel,
- Current versions are available at all appropriate locations,
- Obsolete documents are promptly removed,
- Obsolete documents retained for preservation are identified as such, and
- Documents are legible, readily identifiable, maintained, retained, and include most recent revision date.

The CPR001.1, Corporate Business Rules System Standard and the CPSR400.2, Information Management meets these requirements.

## 5.12 EMS Audits and Self- Assessments

As part of the ISMS Feedback and Improvement phase, periodic audits and assessments are critical. To ensure that EMS implementation at Sandia is proceeding according to plan, the EMS Program Coordinator will evaluate the EMS Program and division in January 2006 to ensure that all observations from the 12870 audit are being addressed in a timely and effective manner. Additionally, the following self-assessment will be performed annually:

- The EMS Program Coordinator will facilitate an annual self-assessment of the EMS Program. The assessment will be conducted by a team composed of line representatives and environmental program SMEs,
- Each Division EMS Champion will conduct an annual self-assessment of their Division EMS Program, and
- The EMS Program Coordinator will conduct an annual EMS awareness survey to determine the degree of EMS awareness within the Sandia workforce.

## 5.13 Management Review

Sandia management is responsible for periodically reviewing the EMS and the progress in meeting corporate and divisional goals and objectives. This includes:

- Reviewing EMS audit and self-assessment and implementing corrective actions to address any deficiencies,
- Annually review corporate and divisional aspects/impacts and set new goals and objectives, and
- Conducting Quarterly ES&H reviews with each division VP. EMS implementation status is a component of this review.

# 6.0 SELF-DECLARATION

While the EMS is an ongoing, continual improvement program that will form the framework for all future environment programs and activities at Sandia, the target date to have the initial EMS in place is December 31, 2005. This is the date that the DOE/SSO must declare that Sandia complies with the DOE Order 450.1 requirements. To provide DOE/SSO with the assurance to make that declaration, Sandia will deliver a letter, signed by Laboratory Director, Tom Hunter, to SSO on, or before, December 8, 2005. The basis for the self-declaration will be completion of the observations identified in the internal audit conducted by Sandia with participation by DOE Service Center and observation by DOE/SSO.

In FY05, the Sandia Organization 12870, the ES&H, Quality, and Safeguards & Security Assessments Department conducted an independent assessment of the Sandia EMS. The assessment reviewed the EMS and compared it to the DOE Order 450.1 Contractor's Requirements Document (CRD). The goals of the assessment were to determine if Sandia was meeting the CRD and to evaluate the general EMS awareness and the status of EMS implementation at a corporate and division level. The Corporate S&H/Q/S&S Interim Assessment Report (2005-1-018), was issued on September 15, 2005. This report showed that Sandia's EMS does not fully meet the requirements of the DOE O 450.1 CRD and attributes of EMS implementation and identified several observations with associated actions. The assessment team noted that, upon completion of several short-term actions to address the observations, Sandia's EMS can be brought into compliance with the DOE O 450.1 CRD. Appendix B lists these observations with Sandia's associated actions and the date to complete these actions.

Beginning on October 21, 2005 Organization 12870 will conclude their assessment by conducting a field verification. The purpose of the field verification is to determine whether the initial observations were correct and whether actions have been completed sufficient to meet the DOE Order 450.1 CRD requirements. Following the field verification phase, the assessment team will generate a final report to be disseminated near the middle of November 2005. The final report will be the basis for Sandia Corporation President, Tom Hunter, to declare, on behalf of SNL, one of the following: (1) EMS has been fully implemented at SNL; (2) EMS has been implemented at SNL with identified deficiencies to be corrected; or (3) EMS has not been implemented at SNL.

# 7.0 FY06 PATH FORWARD

To implement Sandia's EMS to meet our vision of best-in-complex in two years and best-in-class in five years, it is necessary to have a clear path forward. FY06 activities listed in Appendix C are designed to create a process for continual improvement on a path to meeting Sandia's EMS vision.

# 8.0 REFERENCES

DOE Order 450.1, US Department of Energy, Environmental Protection Program, DOE Order 450.1, US Department of Energy, Washington DC (January 15, 2003)

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# APPENDIX A – FY06 CORPORATE ASPECTS AND OBJECTIVES AND TARGETS

| ENVIRONMENTAL ASPECT | OBJECTIVES | TARGETS | ACTIVITY | RESPONSIBLE ORG. | SUPPORTING ORG. |
|---|---|---|---|---|---|
| 1. Hazardous Materials (Use and Storage) | Improve chemical handling, storage, and on-site movement of hazardous materials | Establish baseline of toxic chemical use based on age and toxicity | Review reports for chemical and material management information. | Pollution Prevention | Industrial Hygiene<br><br>Chemical Inventory System |
| 2. Water Discharges (Sanitary Sewer and Storm water | Minimize environmental releases to show continual improvement | Track reportable and non-reportable releases to establish a baseline | Measure concentration of selected pollutants in effluents to establish trends | Water Quality Program<br><br>Surface Discharge Program | |
| | | | Trend release data and make available to Line organizations | Wastewater Discharge Program<br><br>Storm Water Program | |
| | | . | Incorporate sanitary sewer | Wastewater Discharge Program | |

| ENVIRONMENTAL ASPECT | OBJECTIVES | TARGETS | ACTIVITY | RESPONSIBLE ORG. | SUPPORTING ORG. |
|---|---|---|---|---|---|
| | | | and storm water runoff planning data in the early stages of new construction and major renovations | Storm Water Program | |
| 3. Hazardous Waste Management | Minimize volume and toxicity of hazardous waste generated | Reduce the generation of routine hazardous, FY06 compared to FY05 values. | | Waste generating divisions | Waste Operations<br><br>Pollution Prevention |
| | | Establish annual quantitative reduction goals for FY07 based on division estimates established through the EMS aspects/impacts analysis | | Waste generating divisions | Line Organizations<br><br>Pollution Prevention |
| 4. Land Use | Minimize Sandia's impact to the environment | Use NEPA and TEAMS to identify opportunities in projects. | | Sandia projects and divisions | NEPA Compliance Program |

| ENVIRONMENTAL ASPECT | OBJECTIVES | TARGETS | ACTIVITY | RESPONSIBLE ORG. | SUPPORTING ORG. |
|---|---|---|---|---|---|
| | Increase Awareness<br><br>Improve Planning<br><br>Incorporate Training | Track NEPA submissions for projects to establish baseline for lead times. | Implement a comprehensive Site Planning Document | NEPA Compliance Program | Facilities Site Planning |
| | Minimize Sandia's Ecological Footprint | Compute ecological footprint to establish a baseline | | P2 Program | |
| 5. Radioactive Material (Use and Storage) | Improve compliance and performance regarding use, storage and on-site movement of radioactive materials | | Track/trend RPIRS (or equivalent) | | |
| | | | Track/trend source database | | |
| 6. Resource Use (water, natural gas, electricity, materials) | Incorporate sustainable environmental stewardship in the design and construction of capital assets | Incorporate sustainable practices in the design and construction of new buildings and major renovations | | Facilities | P2 Program |
| | | Obtain LEED certification for at least one SNL building | | Facilities | P2 Program |
| | | Include beneficial landscaping | | Facilities | P2 Program |

| ENVIRONMENTAL ASPECT | OBJECTIVES | TARGETS | ACTIVITY | RESPONSIBLE ORG. | SUPPORTING ORG. |
|---|---|---|---|---|---|
| | | practices in site programs and plans. | | | |
| | Procurement of recycled-content, bio-based and other environmentally preferable products | SNL/NM: Pursue 100% compliance with all Comprehensive Procurement Guideline (CPG) products | | Procurement | P2 Program |
| | | SNL/CA: Increase CPG purchases by 5% in FY06 from FY05 values. | | Procurement | P2 Program |
| | | Establish methodology to track bio-based purchases and other EPP purchases | | Procurement | P2 Program |
| 7. Radioactive/Mixed Waste (Generation and Management) | Minimize the volume and activity of radioactive and mixed waste generated | Reduce the generation of routine radioactive and mixed waste in FY06 compared to FY05 values. | | Waste generating organizations | Waste Operations<br><br>Pollution Prevention |
| | | Establish annual quantitative | | Waste generating organizations | Line Organizations Pollution |

| ENVIRONMENTAL ASPECT | OBJECTIVES | TARGETS | ACTIVITY | RESPONSIBLE ORG. | SUPPORTING ORG. |
|---|---|---|---|---|---|
| | | reduction goals in FY07 based on division estimates established through the EMS aspects/impacts analysis | | | Prevention |
| 8. Reuse and Recycling of Resources | Divert materials suitable for reuse and recycling from sanitary landfills | SNL/CA: Increase recycling percent by 5% in FY06<br><br>SNL/NM: Increase recycling percent by 5% in FY06<br><br>SNL/NM: Increase recycling recovery percentage at Solid Waste Transfer Facility from 25% to 40%<br><br>SNL/NM: Recycle 50 % of non-routine waste | | Line Organizations | Waste Operations<br><br>Pollution Prevention |

# APPENDIX B. ACTIONS AND SCHEDULE TO ACHIEVE EMS SELF-DECLARATION

| 12870 Audit INITIAL OBSERVATIONS | Corrective Response | Due Date |
|---|---|---|
| **1:** The crosswalk provided by the corporate EMS team does not provide objective evidence that Sandia meets all the requirements of DOE Order 450.1 | Revise crosswalk to provide the required objective evidence | Draft for Internal Review – 9/30/05<br>Distribute to department 12870 – October 10, 2005 |
| **2:** The Business Management and Enabling Services Division 10000 VP, the EMS implementation owner, has not formally identified the corporate expectations of each SNL division relative to the implementation and continued integration of EMS into work activities. | Frank Figueroa, Division 10000 Vice-President will issue letter to other Sandia Vice-Presidents identifying EMS as a core value and detailing with corporate and division expectations and actions. Target date for issuance is October, 4, 2005 | Issue letter – October 4, 2005 |
| **3:** An approved corporate strategy or process has not been generated for managing and overseeing SNL's EMS. A written, approved EMS plan must include following features:<br>• Aspects/impacts analysis<br>• Identification of measurable goals, objectives and targets<br>• Performance of self-assessments to monitor ES&H performance | Complete EMS Program Manual and revise Chapter 2, 10, 19 and 22 of the ES&H Manual. | EMS Program Manual:<br>Draft for review – October 10, 2005<br>Issue – November 7, 2005<br><br>ES&H Manual<br>Submit revisions to ES&H Manual committee – October 21, 2005<br>Issue revised chapters – November 30, 2005 |
| **4.** 100% of division VPs have not sent a memo of EMS commitment to their staff | Obtain commitment memos for all divisions. | October 21, 2005 |
| **5.** 100% of division VPs have not identified an EMS champion in writing and assigned the | Obtain written direction from all divisions VPs, assigning EMS Champions. EMS | Assign ESM Champion – October 21, 2005 |

| 12870 Audit INITIAL OBSERVATIONS | Corrective Response | Due Date |
|---|---|---|
| champion written responsibilities and a labor budget, as appropriate | Champion responsibilities will be defined in the EMS Program Manual | Issue EMS Program Manual – November 7, 2005 |
| **6.** 100% of divisions have a written, approved plan for implementing EMS, which includes at a minimum a process for performing impact/aspects analysis, developing division-specific measurable objectives and targets and that requires an annual review and updating as appropriate. | Issue separate EMS Action Plan, or revise annual ES&H Action Plans to include actions to achieve FY06 objectives and targets. | October 21, 2005 |
| **7.** 100% of divisions have established and documented division-specific goals, objectives and targets that are measurable. | Divisions will review and revise their goals, as needed to reflect the Sandia's new organizational structure. | October 21, 2005 |

# APPENDIX C. FY06 IMPLEMENTATION SCHEDULE

| ACTION | DUE DATE | RESPONSIBLE PARTY |
|---|---|---|
| Complete division actions from 12870 audit | October 21, 2005 | Division Vice-Presidents and EMS Champions |
| Complete Program Actions from 12870 audit | December 2, 2005 | EMS Program Champion |
| Issue self-declaration statement | December 8, 2005 | Tom Hunter |
| EMS Core Team meetings | Monthly | EMS Program Coordinator, division EMS Champions |
| DOE/SSO Briefings | Monthly | EMS Program Coordinator |
| Revise ES&H Manual to include EMS requirements | May 2006 | EMS Program Coordinator |
| EMS Benchmarking | June 30, 2006 | Department 10312 with assistance from EMS Program Coordinator |
| EMS Program Self-assessment | May – July 2006 | EMS Program Coordinator with assistance from Line organizations |
| EMS Division Self-assessment | May 2006 | EMS Division Champion |
| EMS outreach events | Throughout the year | EMS Program Coordinator<br>EMS Core Team |
| ISO 14001 Training | May 2006 | EMS Program Coordinator |
| Divisions - Review and revise division aspects/impacts and set new objectives and targets | August 2006 | Division EMS Champions<br>Division EMS Teams<br>Division Vice-Presidents |
| EMS Self-assessment survey | Conduct survey – July 2006<br>Issue report – September 2006 | EMS Program Coordinator |
| Program - Review and work with Divisions to revise division aspects/impacts and set new objectives and | September 2006 | EMS Program Coordinator<br>EMS Core Team |

| | | |
|---|---|---|
| targets | | |
| Review and revise EMS Program Manual | Draft for review – September 30, 2006<br>Issue 2007 Plan – October 31, 2006 | EMS Program Coordinator |